

Title (en)  
METHOD FOR THE PRODUCTION OF A MULTI-LAYER BACK ELECTRODE FOR A PHOTOVOLTAIC THIN-FILM SOLAR CELL, MULTI-LAYER BACK ELECTRODE ACCORDING TO THE METHOD, PHOTOVOLTAIC THIN-FILM SOLAR CELL AND MODULE COMPRISING THE MULTI-LAYER BACK ELECTRODE

Title (de)  
VERFAHREN ZUR HERSTELLUNG EINER MEHRSCICHT-RÜCKELEKTRODE FÜR EINE PHOTOVOLTAISCHE DÜNNSCICHTSOLARZELLE, MEHRSCICHT-RÜCKELEKTRODE ERHALTEN NACH DEM VERFAHREN, PHOTOVOLTAISCHE DÜNNSCICHTSOLARZELLEN UND -MODULE ENTHALTEND DIE MEHRSCICHT-RÜCKELEKTRODE

Title (fr)  
PROCÉDÉ DE FABRICATION D'UN ÉLECTRODE ARRIÈRE MULTICOUCHE POUR UNE CELLULE PHOTOVOLTAÏQUE EN COUCHES MINCES, ÉLECTRODE ARRIÈRE MULTICOUCHE SELON LE PROCÉDÉ, CELLULE ET MODULE PHOTOVOLTAÏQUE EN COUCHES MINCES COMPRENANT CET ÉLECTRODE ARRIÈRE MULTICOUCHE

Publication  
**EP 2834851 B1 20200812 (DE)**

Application  
**EP 13704463 A 20130218**

Priority  
• DE 102012205377 A 20120402  
• EP 2013053144 W 20130218

Abstract (en)  
[origin: WO2013149756A1] The invention relates to a multi-layer back electrode for a photovoltaic thin-film solar cell, comprising, in this order, at least one bulk back electrode layer (4), at least one, in particular ohmic contact layer (8a, 8b), - obtained by applying at least one layer containing or substantially consisting of at least one metal chalcogenide, the metal being selected from molybdenum, tungsten, tantalum, cobalt and/or niobium and the chalcogen being selected from selenium and/or sulfur, by means of physical or chemical vapor deposition using at least one metal chalcogenide source, or - obtained by applying at least one metal layer (first layer, 10), wherein the first layer and the bulk back electrode layer, in their composition of one or more metals with respect to one or all of these metals, do not match (Mo, W, Ta, Nb and/or Co) and a metal chalcogenide layer (second layer, 12). The invention also relates to the use of this multi-layer back electrode for producing thin-film solar cells and thin-film solar modules, to photovoltaic thin-film solar cells and modules containing the multi-layer back electrode and to a method for producing photovoltaic thin-film solar cells and modules.

IPC 8 full level  
**H01L 31/0224** (2006.01); **H01L 31/032** (2006.01); **H01L 31/0749** (2012.01)

CPC (source: CN EP US)  
**H01L 31/022425** (2013.01 - CN EP US); **H01L 31/0322** (2013.01 - CN EP US); **H01L 31/0326** (2013.01 - CN EP US); **H01L 31/046** (2014.12 - US); **H01L 31/0749** (2013.01 - CN EP US); **Y02E 10/52** (2013.01 - EP US); **Y02E 10/541** (2013.01 - EP US); **Y02P 70/50** (2015.11 - EP US)

Citation (examination)  
• JP 2011198883 A 20111006 - FUJIFILM CORP  
• AT 10578 U1 20090615 - PLANSEE METALL GMBH [AT]  
• WO 2011155639 A1 20111215 - SHOWA SHELL SEKIYU [JP], et al & DE 112011101973 T5 20131121 - SHOWA SHELL SEKIYU [JP]

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)  
**DE 102012205377 A1 20131002**; AU 2013242989 A1 20141120; AU 2017200544 A1 20170223; CN 104350606 A 20150211; CN 104350606 B 20161221; EP 2834851 A1 20150211; EP 2834851 B1 20200812; IN 8078DEN2014 A 20150501; JP 2015514324 A 20150518; KR 20140138254 A 20141203; US 2015114446 A1 20150430; WO 2013149756 A1 20131010

DOCDB simple family (application)  
**DE 102012205377 A 20120402**; AU 2013242989 A 20130218; AU 2017200544 A 20170127; CN 201380028771 A 20130218; EP 13704463 A 20130218; EP 2013053144 W 20130218; IN 8078DEN2014 A 20140926; JP 2015503792 A 20130218; KR 20147027721 A 20130218; US 201314389158 A 20130218